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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/811,419	03/20/2001	Masaya Ogura	862.C2151	9530

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EXAMINER

NGUYEN, HUNG

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 12/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/811,419

Applicant(s)

OGURA ET AL.

Examiner

Hung Henry V Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 March 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 12-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-15 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. This application contains claims 12-15 drawn to an invention nonelected with traverse in Paper No. 7. A complete reply to the final rejection must include cancelation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Specification

2. The amendment filed October 17, 2002 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: “a first pressure control device for making pressure inside the projection optics unit higher than pressure outside the chamber”; “first correction means for correcting optical characteristics of the projection optics unit in accordance with a value of pressure inside the projection optics unit” (applicant’s amendment, page 2, lines 4-13, in the Abstract).

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one

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skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In amended claim 1 (for example), the following claim provisions lacks support in the disclosure as originally filed and thus considered NEW MATTER: “first pressure control means for making pressure inside the projection optics unit higher than pressure outside the chamber”; “first correction means for correcting optical characteristics of the projection optics unit in accordance with a value of pressure inside the projection optics unit”.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 1, the recitation of “for making the pressure inside the projection optics unit higher than pressure of outside the chamber” is not clearly understood (see rejection under 35 U.S.C. 112, first paragraph, *supra*).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 1-7 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osakabe (U.S.Pat. 6,266,133) in view of Miyaji et al (U.S.Pat. 5,559,584).

As best the claimed subject matters are understood (see rejection under 35 U.S.C. 112, first and second paragraphs supra). Claims are anticipated by references.

With respect to claims 1-7, 10-11, Osakabe et al teaches a projection optical system comprising substantially all of the limitations of the instant claims as set forth above such as: an illumination optical system (2) for irradiating a reticle (4) including a light source (1); a reticle stage for supporting the reticle (4); a projection optical system (3) for projecting a pattern formed on the reticle onto the substrate (5) a housing (6) for enclosing the projection optical system; and a substrate stage for supporting the substrate (see fig.1), at least one chamber (110 for example) for internally accommodating the illumination optical system, the reticle stage, the substrate stage (see fig.1). Osakabe (fig.6) further teaches pressure sensors (33, 34) for monitoring the pressure inside and the pressure outside of the chamber (6) which encloses the projection optical system and a controller (35) for controlling and maintaining the pressure inside and pressure outside of the chamber (6) at a predetermined level. Osakabe further teaches a plurality of pressure control means (9) for controlling the pressures inside the ‘at least one chamber’ (see fig.1). The inside of the chamber is supplied with inert gas such as nitrogen, argon, or helium to correct optical characteristics of the projection optical system based on the pressure inside the chamber (see abstract). Osakabe does not expressly disclose that the pressure inside the “projection optical system” is higher than the pressure outside the chamber. Miyaji et al discloses an exposure apparatus for transferring a pattern formed on a mask onto a substrate where the pressure inside the projection optical system (PL) is set to be above the

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atmospheric pressure for the purpose of preventing the contamination. (see col.6, lines 54-56).

In view of such teachings, it would have been obvious to one having ordinary skill in the art at the time the invention was made to set the pressure inside the "projection optical system" higher than the pressure outside the chamber for reducing the changes of cross contamination and improving the quality of the imaging system.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Osakabe (U.S.Pat. 6,266,133) in view of Miyaji et al (U.S.Pat. 5,559,584) and further in view of Aoki (JP-5-210049A).

With respect to claim 8, Osakabe as modified by Miyaji discloses substantially all of the limitations of the instant claims except for the optical characteristics of the projection optical system being corrected based upon the index of refraction which varies in accordance with the pressure inside the chamber. Aoki teaches correcting the characteristics of the projection optical system (23) based upon the index of refraction which varies and detected by pressure sensor (19). It would have been obvious to a skilled artisan to combine the teachings of Osakabe as modified by Miyaji et al and Aoki to obtain the invention as specified in claim 8 for the purpose of correcting the characteristics of the projection optical system whereby improving the quality of the exposure apparatus.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Osakabe (U.S.Pat. 6,266,133) in view of Miyaji et al (U.S.Pat. 5,559,584) and further in view of Arakawa (U.S.Pat. 6,356,338).

With regard to claim 9, Osakabe as modified by Miyaji lacks to show "substrate load lock chamber" and "reticle load lock chamber". Arakawa teaches an exposure apparatus having "substrate load lock chamber" and "reticle load lock chamber" (see fig.1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the "substrate load lock chamber" and "reticle load lock chamber" as taught by Arakawa into the exposure system of Osakabe as modified by Miyaji for at least the purpose of storing the substrates and reticles and keeping the substrates and reticles from being contaminated.

Response to Amendment/Arguments

9. The Examiner thanks the Applicant for pointing out the errors in the listing of Japanese documents on the PTO-892 form. The examiner corrected as follows: the first Japanese patent document is listed as: JP-10-154655 and the second Japanese patent document is listed as: JP-5-210049.

In response to office action dated May 17, 2002, the applicant has amended the specification as well as claims 1, 2, 4-8, 12, 14, and 15, that changed "first pressure control means for making pressure inside the chamber higher than pressure outside the chamber" to "first pressure control means for making pressure inside the projection optic units higher than pressure outside the chamber" and changed "first correction means for correcting optical characteristics of the projection optics unit in accordance with a value of pressure inside the chamber" to "first correction means for correcting optical characteristics of the projection optics unit in accordance with a value of pressure inside the projection optics unit". Then, the Applicant stated that "no new matter has been added by these changes". The Examiner respectfully disagrees with the applicant. As originally filed, applicant's disclosure discloses the

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chamber (14) is for enclosing the illuminating optics unit (12) , the reticle stage (7, 15), the projection optics unit (13), a substrate stage (9) and the substrate (8) (see specification, and claim 1 as originally filed, and fig.1). The disclosure further discloses that the inner pressure of the chamber is set higher than an external pressure outside the chamber “to prevent atmospheric oxygen outside the chamber from penetrating into the interior” of the chamber (see page 5, lines 10-18). One having ordinary skill in the art would understand that the projection optic units (13) is a hermetic unit and is isolated from the atmosphere formed by the chamber (14). Therefore, one having ordinary skill in the art would recognize that the changes made to the specification and the claims in the amendment filed October 17, 2002 (as mention above) totally altered the scope of the invention as originally filed and thus must be considered as new subject matters.

With respect to the art rejection, applicant's arguments have been carefully reviewed but have been traversed in view of the new grounds of rejection as set forth above.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henry Hung V Nguyen whose telephone number is 703-305-6462. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 703-308-2847.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4900.

A handwritten signature in black ink, appearing to read 'Henry Hung V Nguyen', with a long horizontal flourish extending to the right.

December 13, 2002